MIT's Oldest and Largest Newspaper

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The Tech
Established 1881

Volume 138, Number 05

Thursday, March 8, 2018

WEATHER, p. 2

THU: 39°F | 31°F
Chance Rain

FRI: 40°F | 32°F
Slight Chance Rain

SAT: 44°F | 33°F
Partly Sunny

MAHI SHAFIULLAH—THE TECH

Students write and post letters to home and abroad free of charge thanks to MIT Libraries in Lobby 10 during Random Act of Kindness (RAK) week.

Random Hall loses power because of Friday nor'easter

Backup generator kept emergency lighting, heat, hot water running

By Sandhya Kalavacherla
NEWS EDITOR

Random Hall experienced a power outage at approximately 10:45 a.m. on Friday. Power was restored at 2:30 p.m. on Saturday by Eversource Energy, which supplies electricity directly to Random.

David Friedrich, senior director of housing operations and renewal in the Division of Student Life, explained to *The Tech* in an email that last week's nor'easter caused power outages in communities across the region, including Cambridge. The power lines on Windsor and State Streets near Building N52 that went down due to the nor'easter led to power outages in Random as well as other buildings in the area.

Julie Gagnon, Random's house manager, coordinated the restoration of power. During the outage, Random was on emergency power supplied by a generator. Facilities personnel made regular visits to Random to ensure that the building's emergency generator powered the heat and lights throughout the outage, Friedrich wrote.

"Fortunately, the backup generator in the building kept emergency lighting, heat, and hot water running — although the lack of working outlets and not having an internet connection made it an interesting time," Jared Berezin, Random's head of house, wrote in an email to *The Tech*.

MIT offered residents free meals at Maseeh's dining hall from Friday lunch through Saturday dinner.

Some felt the power outage strengthened the sense of community in Random.

"Randomites had a nice dinner together in Maseeh on Friday night; I was pleased to see that when we were all inconvenienced we were able to enjoy each other's company," MJ Porzenheim '19, Random's external president, wrote in an email to *The Tech*.

Further, Berezin and his wife had lunch with students in Maseeh's dining hall on Saturday. "It was fun seeing so many Randomites come together for a meal outside of the dorm," Berezin wrote.

Random Hall has had similar incidents in the past — on Oct. 13, 2015, the dormitory lost power between 1:40 a.m. and 11 a.m. However, last weekend's power outage was the first and longest since then, according to Ian Clester '19, Random's internal president.

Office of Minority Ed. launches new program for men of color

The Standard provides cohorts with mentors, funding

By Jocasta Manasseh-Lewis

The Office of Minority Education held its inaugural induction ceremony for its new initiative, The Standard, March 2. Funded by the MindHandHeart Innovation Fund, The Standard is a program designed to provide undergraduate men of color at MIT a community for academic, personal, and professional support. This first cohort consists of 22 freshmen.

In an interview with *The Tech*, Dionetta Jones-Crayton, associate dean for undergraduate education and director of the OME, said that the Standard was the first of its kind at MIT "because it is both cohort-based and community-based," in contrast to My Sister's Keeper, a decentralized organization for women of color at MIT.

Members of The Standard will have access to seminars, retreats, mentors, and funding for applications to graduate school, but some of these resources will also be available to all men of color who are students at MIT, who may not have the time to be full-time members of the program.

Jones-Crayton said in a speech at the induction ceremony, "While this cohort and future cohorts will certainly have a core and sacred level of support and community, The Standard will also provide a wide range of programs that will touch men of color outside of the cohort, so this is truly a community endeavor."

The creation of The Standard was inspired by growing awareness of disturbing national trends concerning the implications for men of color as a result of community policing and the Black Lives Matter movement, according to Jones-Crayton. "The timing is right for MIT to pay attention to it," she said.

For this first cohort, applications opened in the spring; however, the application cycle will be in the fall for future cohorts, and the OME plans to spread information about the program during Orientation Week and CPW.

Many members of The Standard applied because they had positive experiences with other resources from the OME, such as Interphase, Momentum, and the Talented Scholars Resource Room. One of the inductees, Gabriel Owens-Flores '21, said in an interview with *The Tech*, "I don't think I would have applied if I hadn't done Momentum."

A strong sense of community also attracted applicants. "I feel like something I've been looking for a lot here is a community that I can really be a part of, and not only get a lot from it but contribute to it," Joshua Verdejo '21, another inductee, said in an interview with *The Tech*.

IN SHORT

Add date is March 9.

The undergraduate fall housing and dining applications are due April 1.

Summer housing applications will become available March 25.

The platform, statement of candidacy, and signatures for **prospective UA President and Vice President and Class Council candidates** are due on March 10 at 5 p.m.

Quarter 4 Physical Education class registration will close March 14 at 1 p.m.

***The Tech* is looking** for science and features writers and production staff.

Send news and tips to *news@tech.mit.edu*.

PLEASURE hosts third annual campus sexual education week

Peers Leading Education about Sexuality and Speaking up for Relationship Empowerment (PLEASURE@MIT) hosted its third annual Pleasure Week from Feb. 26 to Mar. 2.

PLEASURE runs modules throughout the year for its members and the broader MIT community, but PLEASURE week offers the opportunity for interactive workshops and discussions on more in-depth topics such as consensual relationships, abusive behavior, and erotica.

Trained PLEASURE student educators planned the event over the past two months. "There's a lack of education. That's why a lot of us are doing it — we want to fill that void," Max Yu '21, a PLEASURE educator, said in an interview with *The Tech*.

Yu expressed satisfaction with the continued dialogue on campus surrounding the topics of sexual assault. "It finally feels like we're getting these conversations into the mainstream."

— *Christina Warren*

Next year's dining plans, explained

Newly structured plans increase both flexibility and average costs

By Patrick Wahl
EXECUTIVE EDITOR

The Division of Student Life (DSL) recently released a new set of dining plan options for the upcoming academic year. Though a full description can be found on the DSL's website, here is an overview of the major changes:

- In addition to two normal dining plans which grant students an allotted number of meals per week, there will be three plans that allow students to purchase a certain number of meals per semester.
- All of the plans include an allotment of Dining Dollars, each worth 1.05 U.S. dollars, which can be used to purchase food from most retail outlets at MIT, including Anna's Taqueria, Cafe Four, and Forbes Family Cafe in Stata. LaVerde's will not accept Dining Dollars.
- Maseeh freshmen will no longer be required to purchase the Any 19 plan. They, along with all other freshmen, will be permitted to purchase the Any 14 plan or a semester plan including 260 or 190 meals.
- Cheaper optional meal plans will be available to students not living in dining dormitories. These will follow the meals-per-semester model.
- The new meal plans will still be more costly, on average, than the old ones, following general tuition and cost of living increases at MIT. The Any 19 meal plan, which had previously cost $5,300 per year, will now cost $5,620, but will include $105 worth of Dining Dollars, bringing the price spent on dining hall meals to $5,515.

If you have thoughts about the new dining plan options, please send them to *news@tech.mit.edu*.

SKIS PLEASE!

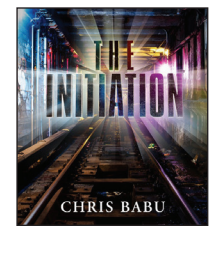
Read about how a new award made its debut at the Academy Awards last weekend. **CAMPUS LIFE, p. 5**

DIVE INTO HARVARD SQUARE

Waypoint Restaurant introduces its new brunch menu. **ARTS, p. 10**

LAB OF THE WEEK

Investigating industrial phosphorous processing. **SCIENCE, p. 7**



MIT ALUM WRITES BOOK

Featuring a story riddled with puzzles and the subways of New York. **ARTS, p. 11**

NEED ADVICE?

Submit questions to Auntie Matter at tinyurl.com/AskAuntieMatter.

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WEATHER

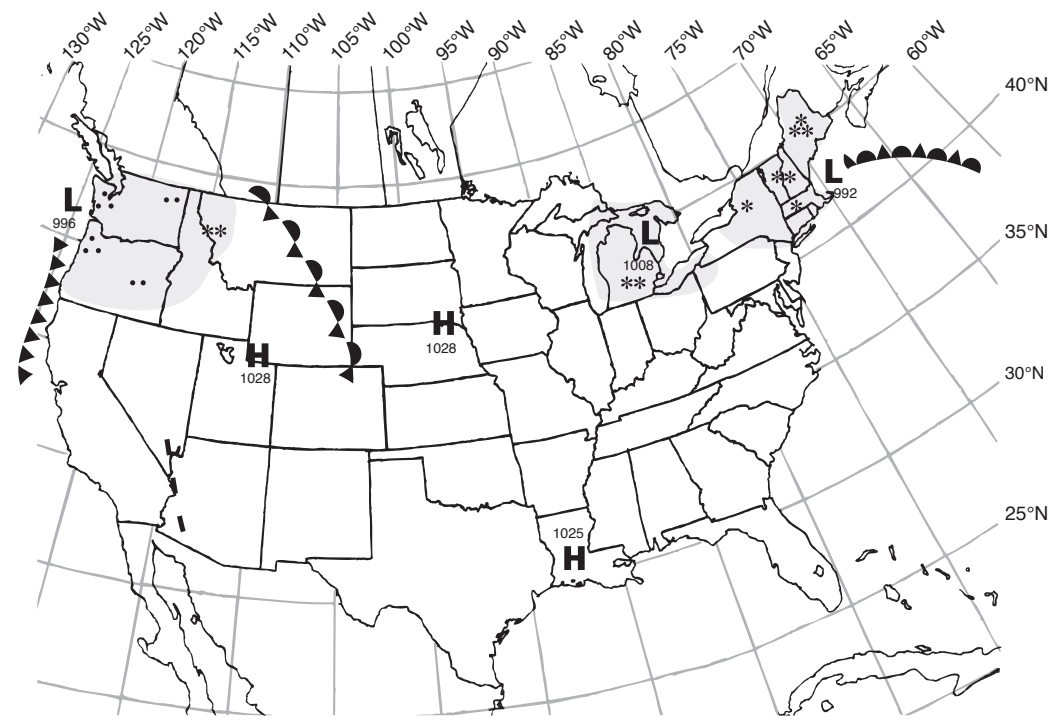
Winter storms in March!

By Sarah Weidman
STAFF METEOROLOGIST

Last night was a particularly exciting storm for New England. A nor'easter blew up from the coast, leaving many coastal cities buried beneath several inches of snow. We may continue to experience some light precipitation this afternoon and into tomorrow as the back side of the storm drifts across the region. After a couple drier and slightly warmer days this weekend, another low pressure system is expected to move through on Monday. It's unlikely to bring us a snow day, but expect to see rain and/or wet snow early next week.

Wet snow and rain storms such as these are not uncommon in the month of March in Boston. Low pressure systems blowing in from the south are often frequent this time of year. Compared to earlier in the winter, warmer temperatures generally bring in rain or wet, heavy snow. If you're a fan of warm and dry weather, you may want to consider going elsewhere for Spring Break.

Extended forecast:
Today: Cloudy, with a chance of rain. High around 39°F (4°C). West winds at 10–15 mph.
Tonight: Mostly cloudy. Low around 31°F (-1°C). West winds at 8–13 mph.
Tomorrow: Mostly cloudy with a chance of rain. High around 40°F (4°C) and low around 32°F (0°C). West winds at 10–15 mph.
Saturday: Partly sunny. High around 44°F (7°C) and low around 33°F (1°C).
Sunday: Mostly sunny. High around 44°F (7°C).



Situation for Noon Eastern Time, Thursday, March 08, 2018

FEATURE

Francisco Rodriguez-Guardado: One immigrant's story

From Disney World to MIT

By Ayomide Fatunde

Francisco Rodriguez-Guardado is an MIT Custodian facing possible deportation by U.S. Immigration and Customs Enforcement (ICE). He was detained by ICE in July of 2017 and released conditionally in December. His lawyers are currently working to reopen his asylum case.

The Tech sat down for an interview with Rodriguez-Guardado last week to learn more about the life he left in El Salvador and the life he built here in the U.S. Rodriguez-Guardado first came to the U.S. when he was six years old. When asked what his first job was in America, he joked that it was "to have fun" at Disney World. This was back in a peaceful time before the Salvadoran Civil War. This bloody 12-year conflict is commonly perceived as the root cause of the gang violence that has overtaken El Salvador.

"If you don't pay, they kill you," says Rodriguez-Guardado, the hint of a cynical smile playing at his lips. This haunting quip is an unspoken truth in El Salvador where the gang Mara Salvatrucha has reigned since the '90s. Commonly known as MS-13, the gang was born in Los Angeles in the 1980s from the children of Civil War refugees, and has since expanded transnationally. Their lucrative drug trade, explosive rivalries, and tight hold on politicians have turned them into one of the most feared gangs in the Western Hemisphere while also transforming Central America into one of the world's deadliest places. El Salvador, for instance, with 81.2 murders per 100,000 people in 2016, currently stands as the most lethal (excepting actual war zones) place in the world.

It is from this violence that Rodriguez-Guardado fled in 2006. At the time, he owned a car wash, worked at a car dealership, and also maintained several side jobs as a skilled industrial construction worker. A graduate of an elite Salvadoran university, Rodriguez-Guardado lived a good life as a highly successful entrepreneur and engineer. That is, until a coworker of his was murdered by MS-13, bringing the threat of targeted gang violence all too close to home.

The decision to leave one's home cannot be taken lightly, especially given all the complicated migrant laws. When asked if it was easy for him, as a financially stable Salvadorean, to obtain a U.S. visa, Rodriguez-Guardado relayed that the system in his home country is "almost like a lottery." He knew financially well-off people who couldn't get visas and people who couldn't even afford plane tickets but still got visas very quickly.

Luckily for him, he had an excellent travel track record due to his frequent trips to the U.S. in his youth. His first non-Disney World job in the U.S. was with a jacuzzi construction company in Utah. Although denied proper asylum, he was granted a stay of removal and a work permit every year until last year. His detention by ICE in June of 2017 sparked outrage across Massachusetts. Students attended rallies in his honor and faculty members raised over $30,000 via GoFundMe to support his family while he was detained.

The Tech asked Rodriguez-Guardado if he was surprised by the outpouring of support from MIT. He says it "felt like a blessing" to see the entire community so involved. "At other jobs, people wouldn't have that type of help, but at MIT, they really see the employee as valuable. Sometimes people work in this field and they want to hear thank you all the time. But I understand, I know that people are busy and in a hurry. For me, the thank you is that people feel comfortable, that they are happy, it's my pleasure."

When Rodriguez-Guardado left El Salvador in 2006, the homicide rate was 64.4 per 100,000 people, significantly lower than today's figure. He came to the U.S. looking for safety and found so much more. He never imagined that he would become part of such a strong community. Or that he would be the father of three beautiful children. "My entire family is here," he told *The Tech*. The threat of deportation looms over him daily as he awaits his appeal. ICE will soon decide whether they will grant Rodriguez-Guardado asylum or send him back to the so-called murder capital of the world. If ICE chooses the latter, Rodriguez would not only lose his family — he could lose his life.

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SABRINA CHENG—THE TECH

Guy Fishman demonstrates the sound of his old Italian cello that was played in the Met for 35 years during the event 'Handel & Haydn Society: On Beethoven's Piano,' March 2.

IFC wins award for risk reduction at conference

RMCs work closely with each fraternity to ensure event safety

By Jessica Shi
NEWS EDITOR

The Interfraternity Council won the Amy Vojta Impact Award in Risk Reduction at the Northeast Greek Leadership Association annual conference in February.

Recipients of the Impact Awards, which are given in seven categories, "have excelled in a certain area and have created a program or initiative that has had a positive impact on their group," according to the NGLA website.

In its application, the IFC emphasized its Risk Management Consultant (RMC) program.

"Essentially, the IFC will hire a team of 12 undergraduate students and train them on how to 'consult' for the houses and act as an advocate for them during social events," Sam Ihns '20, risk manager of the IFC, explained in an interview with *The Tech*.

"Every time a fraternity holds a social event, an RMC will come one to two times to that event and confirm that everything is running smoothly [and] safely," Ihns continued.

Although the program is not new, it has "taken on a bigger role" in recent years, according to Arjun Mithal '19, president of the IFC. "In the past, the RMC hasn't done too much in the way of actively monitoring events. Now, I think the system is pretty strongly in place," Mithal said.

Central to the program is the trust fraternities place in RMCs, Mithal said. Because their responsibilities are separate from the IFC's judicial process — RMCs act as consultants rather than police — fraternities actively seek their advice.

There are "very few" parallel programs at other schools, Ihns said. Most lack direct student oversight and have a weaker IFC presence.

When it comes to managing fraternity events, including during dry periods like CPW and rush, "MIT trusts [the IFC] a lot," Mithal emphasized. "Between fraternities, sororities, and dorms, I think we have the most comprehensive risk and judicial process."

As for data to support the success of the RMC program, Ihns noted that there have been zero external police reports since the beginning of the spring semester, which is "unprecedented." However, Mithal cautioned against attempting to quantify the program's effects, citing the presence of many confounding variables (police standards change with time, for example).

Another component the IFC highlighted in its application was its sexual misconduct awareness and prevention programs. Recent IFC initiatives include using a multi-tiered certification system to incentivize fraternities to attend trainings or host events held by representatives from the Violence Prevention and Response Office, PLEASURE, and other campus groups.

"This was the first time we had been recognized at an award at this conference, so it is especially meaningful for us," Mithal said. "It's nice to be recognized for something we do right."

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secular society of MIT

Our signature series for education in and development of secular thought in our community

COURSE 0

SUBJECT 4

GOD AND THE PHILOSOPHERS

How important are supernatural beliefs to religion? Is having faith in the supernatural rational? How does a non-believer respond to a faith-based assertion? Alex Byrne and Jack Spencer -- MIT philosophy professors with a special interest in philosophy of religion -- will lead a secular philosophical inquiry into such questions, followed by audience Q&A. Open to all. No Course 24 prerequisites.

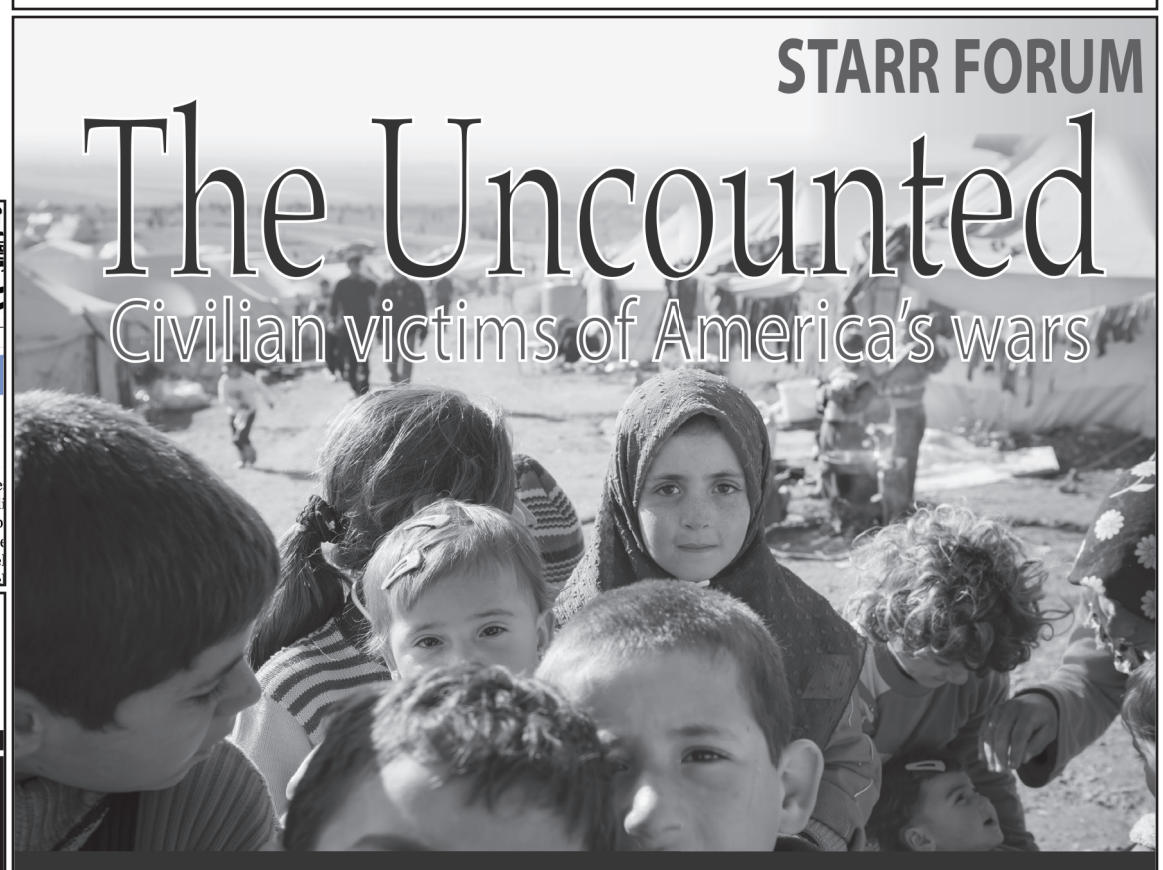
WED, MAR/21 | 7:15PM | 6-120

[free entry | free refreshments] [ssomit.mit.edu]

STARR FORUM

The Uncounted

Civilian victims of America's wars



THURS, MARCH 15, 2018

4:30 PM - 6:00 PM

Building 3-270 | 33 Mass Ave

Azmat Khan is an award-winning investigative journalist, a New York Times Magazine contributing writer, and a Future of War Fellow at New America and Arizona State University.

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OPINION OPINION OPINION

BY THE NUMBERS

14 things you missed from the 90th Academy Awards

Have you ever wanted to win a jet ski?

By Ivy Li and Nathan Liang
EDITORS

Celebrating its 90th run this past Sunday, the Oscars has come and gone. With intriguing outfits, screenplays, and talented people galore, this annual viewing occasion once more delivered a slew of memorable moments. Didn't watch? No worries! We've collected our favorites below:

1. Jimmy Kimmel turned the Oscars into a game show by introducing a Jet Ski prize for the shortest speech (which Mark Bridges won after receiving his Oscar for being *Phantom Thread*'s costume designer).
2. The live band was actually amazing. Those who watched the Oscars with us couldn't help but swing to the music they played in between stage transitions and commercial breaks.
3. There were, of course, inspirational Oscar montages that just *had* to make you appreciate all the years of film a little more.
4. BB8 and other Star Wars characters presented the Oscars for Best Animated Short Film and Best Animated Feature.
5. Ansel Elgort awkwardly presented the Oscars for Sound Mixing and Sound Editing (*Dunkirk* won both, and *Baby Driver* didn't). We thought *Baby Driver* should have at least won a "Best Mixtape" Oscar.
6. Jimmy Kimmel, Gal Gadot, and others surprised nearby moviegoers, who happened to be watching *A Wrinkle in Time* (hitting theaters this Friday, by the way), with plenty of movie snacks!
7. "Girl, my pinky toe fell off." — Maya Rudolph to Tiffany Haddish on wearing heels for extended periods of time, whilst carrying their heels in their hands.
8. After *The Silent Child* won the Oscar for Best Live Action Short Film, writer Rachel Shenton signed the speech to fulfill a promise she had made.
9. With the #MeToo movement, the Oscars highlighted the forthcoming changes in the film industry, moving towards equality, love, and respect for all.
10. "Remember Me," which won the Oscar for Best Original Song, was performed at the Oscars. The performance featured Ernesto de la Cruz's guitar and infamous staging from *Coco*, which also won the Oscar for Best Animated Feature.
11. Guillermo del Toro won the Oscar for Best Director for his beautiful work in *The Shape of Water*.
12. For his performance as Winston Churchill in *Darkest Hour*, Gary Oldman won the Oscar for Best Actor in a Leading Role.
13. Frances McDormand gave a speech championing women's stories in Hollywood after winning the Oscar for Best Actress in a Leading Role. Her last words: "inclusion rider."
14. *The Shape of Water* won Best Picture, bringing this year's Academy Awards ceremony to a close.

MIT application essays that worked

'This is the place where the fog rolls'

Prompt
Describe the world you come from; for example, your family, clubs, school, community, city, or town. How has that world shaped your dreams and aspirations? (200–250 words)

Reponse
Bless the salt marsh bleeding out into the sea, and the faded beach cottages sighing at the approaching evening. This is the place where the fog rolls past the jetty in the morning, and chickadees play hide and seek in the forest. My grandma lives here, and every summer my sister and I come back to explore the woods and fields of coastal Maine — it provides us with a much-needed anchor while we move from place to place as nomads of the Foreign Service, living our third-culture-kid-lives as we wade through the churning soup of multiple perspectives, conflicting narratives, and clashing values. I am still picking through it all, trying to piece together who I think I want to be.

With each move, I am uprooted from my current place and transplanted in a new one. My life seems to be measured by the number of places I've lived in: Beijing with its dripping gray skyscrapers, El Paso with its barren mountains, Seoul with its impenetrable maze of roads, Maine with its beaches and forests, Sonseca with its wide open squares, Amman with its powdery white hills... I draw them close to me, and ache for them after I leave them.

But each impending move presents its own possibilities — I hunger for the people not yet met, beliefs not yet encountered, places not yet explored. If I could, I would visit all the places that a person could visit on this world, and more.

— Sheila Baber

'The world was once just a tiny silhouette'

Prompt
Describe the world you come from; for example, your family, clubs, school, community, city, or town. How has that world shaped your dreams and aspirations? (200–250 words)

Response
I remember when I was younger, sitting in class on the third floor of my elementary school, and gazing out the window to stare at the tiny silhouette of the Chicago skyline, a constant reminder of how big the city is. Going downtown with my mom was always a treat — I loved the hustle and bustle of daily commuters. I dreamed about becoming them, about having the opportunity to live life in a busy city.

I remember when I started high school, a school blocks away from downtown Chicago. I went shopping downtown, went to Chinatown on half-days, and ate at restaurants I had never been to before. Everything was new and exciting, and I loved trying new meals or visiting the intricate little shops downtown that no one ever thinks to stop at.

I remember when I was offered my first opportunity to travel alone, to visit a college in California. I was nervous about getting on a plane without my mom. I remember landing in California, greeted by palm trees in the middle of February. It amazed me how different two cities could be, separated by only a three hour flight. I experienced a different culture altogether — Southern California's obsession with skateboards hasn't really reached the Midwest.

I remember all these things and more, and am always looking forward to trying new things and seeing more of the world that was once just a tiny silhouette from the third floor.

— Ivana Alardin

MIT Policy Hackathon
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Got good ideas?
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Register today! Applications for the
MIT Policy Hackathon due March 9th.

What topics will be covered?

We plan to have challenge statements that cover five broad topic areas.

(1) Energy & Climate
(2) Transportation and Urban Planning
(3) Health
(4) Employment, Education, and Future of Work
(5) Internet & Cybersecurity.

How do I register?

Visit policyhackathon.mit.edu/register and fll out the registration form.

Participation in the hackathon is not guaranteed through registration as we have limited space and need to ensure that we will have well-rounded teams across all of the domains. You'll select roles and domains you are interested in applying for and will be asked about experience.

How does the hackathon work?

Teams will be charged with producing data-driven policy solutions to their challenge statements in the form of a pitch and policy paper. Challenge statements will be come with a background memo containing data sets and resources that could be useful in crafting your policy solutions. Winners get prizes and the chance to work with MIT's Washington Office to connect with audiences for their work!

QUESTIONS? POLICYHACKATHON@MIT.EDU

LAB OF THE WEEK

Perfecting the phosphorous process

The Cummins Group investigates the efficiency and environmental impact of industrial phosphorus processing

The Cummins Group
Room 6-435
Course 5 (Chemistry)

By Ghiselaine Vu-Han
STAFF WRITER

Phosphorus, with the symbol P and the atomic number 15, is one of the six biogenic elements that are essential to living organisms. Phosphorus is in our bones and teeth as hydroxylapatite. It makes up the DNA backbone, and in adenosine triphosphate (ATP), it serves as the primary energy carrier in living cells.

Professor Christopher 'Kit' Cummins, Henry Dreyfus Professor of Chemistry, has been interested in phosphorus and its processing for industrial use for many years. When I met with him and his graduate student Michael B. Geeson, he pulled out a wide, laminated flow-chart explaining the pathways of phosphorus processing.

"This is a graphic that I obtained from a company called ThermPhos," he began.

Pure phosphorus P4 does not occur naturally because it is highly reactive. Phosphorus is mined from phosphate rock, also referred to as "mineral apatite," Cummins said. "Basically animal bones and teeth, it's sedimentary and can have varying degrees of purity and wide ranging quality of ore."

How is the phosphate rock processed and made available for commercial use?

The phosphorus from phosphate rock is processed in two main pathways: in order to make phosphate-containing fertilizers for global agricultural, most of the phosphate (~95%) is processed by the "wet process," where phosphate is treated with sulfuric acid to produce phosphoric acid.

On the other hand, the production of phosphorus containing chemicals requires the "thermal process," an energy-intensive process that reduces the phosphate to pure white phosphorus. The white phosphorus is then treated with environmentally hazardous chlorine to create phosphorus trichloride PCl3. "The chlorides can be replaced with formation of things like carbon phosphorus bonds or others," Cummins explained, while many of the phosphorus chemical products do not end up containing any chlorine.

"White phosphorus becomes the starting point, the first pure substance," Cummins said. It is waxy, "like sticks of butter," and used to be shipped in plastic containers under water, with which it does not react. The end products are important to our economy, used in flame retardants, lithium batteries that power our laptops, smartphones and cars, as well as pharmaceuticals, household cleaning products and even the Coke we drink. "Coca Cola is one example of food-grade phosphoric acid coming from white phosphorus."

"I think we have taken for granted, traditionally, the notion that white phosphorus is the starting point," Cummins said. According to Cummins, the thermal process is "a legacy process." Although many people had wondered whether one could cross-link the "wet process" to make chemical compounds and circumvent the production of white phosphorus and chlorine waste, it had never been done before. "There has been this kind of wall between the fertilizer chemicals on the one hand and all these other phosphorus containing chemicals on the other hand."

The pair published a paper in Science on Feb. 9, in which they described a novel method to make chemical compounds that are normally produced via the thermal process from phosphoric acid, a product of the wet process.

Cummins and Geeson discovered a previously unknown intermediate, bis(trichlorosilyl)phosphide, an "isolatable, free-flowing, white powder" which can be stored and transported under controlled conditions. Geeson was able to make several different phosphorus chemicals including hexafluorophosphate (contained in lithium batteries) and (4-phenylbutyl) phosphine (used in pharmaceuticals) from the intermediate.

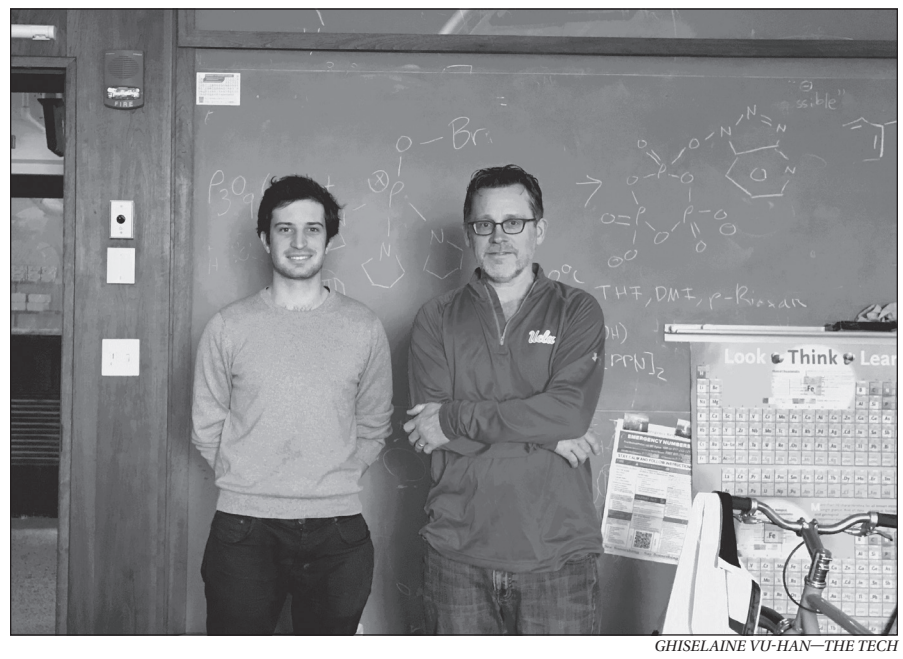
Phosphoric acid, produced in the wet process, can be dehydrated with sodium chloride, producing trimetaphosphate. Trimetaphosphate can have different forms, according to Cummins, the cyclic trimer is the easiest one to make.

"In order to produce bis(trichlorosilyl) phosphide, the trimetaphosphate has to be reduced using trichlorosilane," Cummins said, pointing at the arrow between the molecules in the reaction. Trichlorosilane is produced in commercial scales to make silicone in the semiconductor industry. It is purified from sand. "Trichlorosilane is quite volatile with a boiling point of 35°C," Cummins said, raising his eyebrows. "We actually do this reaction at 110°C in a steel pressure reactor, " added Geeson. The reactor was made by the MIT Museum and fits into the palm of a hand.

If the method became widely available, scientists could potentially avoid the challenges of obtaining white phosphorus to make phosphorus chemicals and instead make it themselves with commercially available products.

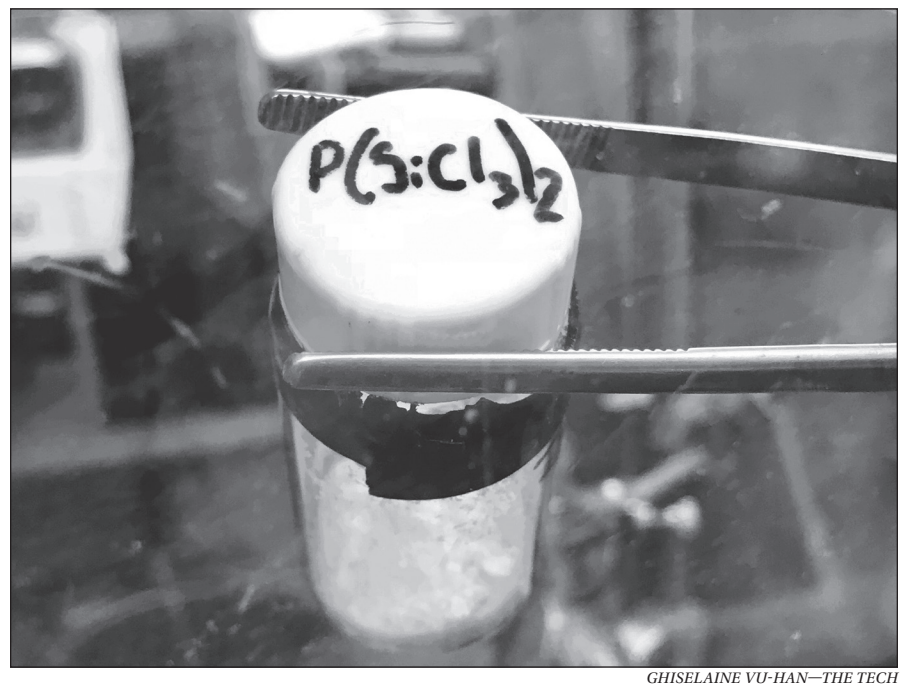
Is the method more energy efficient and environmentally friendly than the traditional process? "A detailed analysis as to how this compares to making white phosphorus would be of value. We don't really know just yet. It may be better because of the economics of scale," Cummins said.

Is the new method likely to replace the traditional processes in phosphorus chemical production? Cummins' answer to that question is twofold: The goal is to disrupt the way that people make phosphorus containing chemicals. We would like to have a new way that is better ... There are many solutions to the problem that we have framed. And we have put forward one solution in this paper."



GHISELAINE VU-HAN—THE TECH

Professor Cummins and graduate student Michael Geeson study phosphorus processing.



GHISELAINE VU-HAN—THE TECH

The previously unknown intermediate bis(trichlorosilyl)phosphide as an isolated, white powder.

Cummins' lab is exploring alternative ways and options of optimizing phosphate processing and welcomes UROPs to join his projects. In 2010, Cummins and his graduate student Daniel Tofan published a paper in Angewandte Chemie describing a method to eliminate environmentally hazardous chlorine in the production of phosphorus chemicals from white phosphorus by using UV light.

Earth's phosphate resources are depleting; the main phosphate rock reserves today are located in Morocco and Western Sahara. Phosphorus is not a renewable resource. Separately, the phosphorus used in agriculture, providing nutrients to the soil for growing plants, runs off into groundwater, rivers, and ultimately oceans, causing eutrophication and the disruption of marine ecosystems. "It is turning a nutrient into a pollutant," Cummins said, and proposed finding solutions to these problems with chemistry.

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MOVIE REVIEW

Lily and Amanda aren't horsing around with murder

Movie *Thoroughbreds* breeds contempt by and for the upper class

COURTESY OF FOCUS FEATURES

Olivia Cooke stars as Amanda and Anya Taylor-Joy as Lily in *Thoroughbreds*, a Focus Features release.

By Ivy Li
ARTS EDITOR

Thoroughbreds is too entertaining and farcical to not enjoy. The plot is simple: Lily (Anya Taylor-Joy) hates her stepfather; Amanda (Olivia Cooke) is her sociopathic friend; and together, they plot to murder Lily's stepfather together. But it becomes more than that. Cory Finley shows off his theater chops with Amanda and Lily's banter. The two female leads are distinct from each other, but the chemistry between Cooke and Taylor-Joy makes their friendship work, and ultimately reveals that they are not as different as the film fools you into believing. In the Q&A afterwards, Finley explained that their narratives form an X-shape: in the end, Lily takes Amanda's place and Amanda takes Lily's.

The title *Thoroughbreds* refers not to the horses (or the horse) in the film, but rather these two well-bred, upper class young women in Connecticut. We find that Amanda, in spite of her sociopathy, is witty and charming and practical. Cooke plays a brilliant Amanda whose honesty will win you over. Opposite Amanda is uptight yet emotional Lily who hides behind heavy makeup and chic, effeminate fashion. Lily and Amanda's first meeting tells you almost everything about their relationship. Amanda wanders around Lily's house and finds a display sword. Amanda pulls the blade from its sheath, just Lily steps into the room, pretending to be nervous, but reads her old friend's intentions perfectly.

All the while, the film plays with traditional storytelling. Tim is a remarkable character. He is the hustler Lily and Amanda hire to murder Lily's stepfather, but he is also, as Anya Taylor-Joy said in the Q&A, the "moral compass of the movie." With a poor background, Tim resorts to selling drugs and working multiple jobs at whatever places hire him. But he dreams big, saying he'll move up in the world, only for brutal Amanda's verbal knockdown of his dreams and the two girls' threats to risk his future. The status difference is very clear. For Tim, who was a sex offender in the past, and for Lily and Amanda, two underage girls with well off families, there is no contest in who survives legal justice. Tim's fate is tied with these girls and the murder plan with them.

This is a gorgeously-filmed story. Set in Connecticut, this movie's upper class world is arresting to look at. For plebeians like me, I am the hustler Tim, who stares at Lily's mansion as opera music plays in the background; he marvels at the exquisite flooring, breathes in the scent of soaps in the marble bathroom, lusts after the fine china, and all the while, the camera, costuming, and lighting just beckon you to stare. The quirky, offbeat music, the dance party lights, the meticulously-applied lipstick, and the selective clothes all seem deliberately unpurposeful. Everything fits into this world effortlessly, but the audience doesn't. The film prods at us, because while we are real, the thoroughbreds in this story can only exist in fiction.

★★★★☆

Thoroughbreds

Directed by Cory Finley

Screenplay written by Cory Finley

Starring Olivia Cooke, Anya Taylor-Joy, Anton Yelchin, and Paul Sparks

Rated R

Opening March 9

PIZZA COLUMN

In defense of Area Four

Is Boston's best pizza right in our backyard?

Area Four

American, $$$

500 Technology Square, Cambridge, MA 02139

Monday–Friday 7 a.m.–10 p.m.

Saturday–Sunday 8 a.m.–10 p.m.

By Hannah Rudoltz
EDITOR

Let me preface this piece by saying: I am very hungry. I ate this Area Four pizza a while ago. I know that hunger strongly affects my grocery shopping, so it will probably affect my writing as well — just beware, I will be salivating more strongly than usual over my pizza memory in this review.

Still, I write this review in defense of Area Four. I'm not defending it from the general public; if you Google "best pizza in Boston," Area Four will invariably come up. I know this, since I Google that phrase about once a month. But despite the restaurant's proximity to MIT's campus, it doesn't seem to enjoy much popularity among MIT's students.

When I say that Area Four makes one of my favorite pizzas in Boston, I often get a surprised reaction. My friends say that the pizza crust is too burnt, it's simply not that great, or most often, that it's overpriced. I would always respond that Area Four's prices were totally in line with what the rest of Boston was charging for pizza!

But let's examine my completely unfounded assumption with data. Area Four charges $21 for a large margherita pizza, or $18 for a marinara pizza. Their most expensive pie, with clams and bacon, is $26.50. I looked at pizza places close to campus that serve large or extra-large pies with ratings over four stars on Google and found that the average price of a large cheese pizza is $15.33, and the average price of the most expensive pizza on the menu is $23.16.

So I plotted the data I found because I couldn't believe that the gap was that big. But when I visualized it, I couldn't deny it: Area Four is a bit overpriced. Still, lunch for myself and Vivian only cost $13 before tax and tip, since we got just a small margherita pizza, and it was more than enough food for two of us. We even delivered an extra slice to a friend on campus. So, though Area Four might not be the most cost effective slice in town, it's not such an expensive option either.

Is Area Four's marginal cost worth it? In my opinion, yes. It's good enough that hungry me almost stopped to pick up a whole pizza for lunch on my way home, despite my current attempt to budget, this plan's clear lack of health benefits, and the fact that I obviously recently got Area Four pizza for this review.

So, why is Area Four's pizza so good? Especially for those who live on the east side of campus or, like me, live off-campus, its proximity makes it a clear winner for the busy or the merely lazy. Even if it's not the best quality pizza in the Boston area (I haven't decided on this one yet), it is surely the best pizza you can get for the least amount of walking.

Vivian and I walked into Area Four on a Saturday around noon without a reservation and were seated at the bar within about 20 minutes. The music playing was trying a bit too hard to be inoffensive, and, honestly, the decor inside the restaurant has never spoken to me. But I don't really care. I will do a lot for my pizza, and sitting through some bland yet annoyingly repetitive music while standing by the bar and waiting for someone to leave is nothing.

On to the actual pizza: the crust is amazing. I hesitate to say perfect, but it's at least pretty close. The texture is crisp on the outside and the kind of chewy on the inside that doesn't just reduce to gumminess after a few good chews. According to their website, the dough is fermented for over 30 hours, and you can taste that. The crust isn't just there; it actively adds to the flavor both through the malty, yeasty taste and the burned leopard spots on the end crust. That's another criticism I often hear of Area Four: "Don't they burn their pizza?" Well, yes, but they burn it in a *good* way.

VIVAN HU—THE TECH

Area Four's margherita pizza.

We didn't get any toppings on the pizza for this visit, but I've gotten a few different pizzas at Area Four before and most have been delicious. Maybe the only time I've been disappointed there was when I ordered a gorgonzola pie, which no longer seems to be on the menu, so no worries! Besides their set topping combinations, Area Four offers a limited mix of mostly non-standard toppings, like eggs, banana peppers, sopressata, and green olives.

One of the best things about Area Four's pizza is that it's well-proportioned. There was also enough sauce to give the pizza some of that Neapolitan soupiness in the center, but not so much that the slice couldn't be picked up. Also, my biggest complaint about the last pizza I reviewed was that there was actually too much cheese on the margherita. Area Four's pizza has enough cheese to add creaminess and salt and general cheesy goodness, but not so much that I felt like the tomato and basil flavors weren't coming through or that the cheese's texture bothered me once the pie cooled.

Another benefit of more conservative cheese application was that I ate half of a small pizza, but I didn't leave Area Four feeling gross. I just felt happy.

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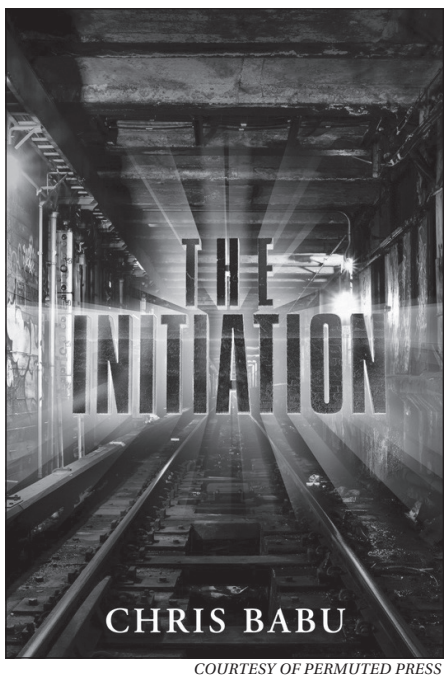
BOOK REVIEW

Imagine a world where mechanical pencils are advanced technology

MIT alum Chris Babu debuts his dystopian thriller YA novel *The Initiation*

By Ivy Li
ARTS EDITOR

Chris Babu '97 graduated from MIT with a mathematics degree and worked on Wall Street as a bond trader for 19 years. But since then, despite being told he was crazy to not stay in finance, he's changed his career to a novelist. I interviewed Babu over the phone about his career change, creative process, and decisions when writing his debut novel, *The Initiation*. He remarked that while at MIT, one was often given the choice between being a scientist/engineer or an artist/painter/writer/etc., and one often chose the former with the artistic side being suppressed. For his career change, the inspiration for this novel happened on the subway to work and he decided to give it a go.



COURTESY OF PERMUTED PRESS

Chris Babu debuts his YA dystopian thriller novel *The Initiation*.

It is no surprise then that his protagonist in his novel too has a change of heart: Drayden, our math geek, intelligent, and not-so-brave protagonist, undergoes the daunting challenge that is the Initiation. Meanwhile, we too are initiated into a world of a dystopian Manhattan. Babu took the hellish subway from 72nd Street to get to work, and now, it's Drayden's turn to journey through the subway.

We are brought abruptly up to speed as Drayden's mother is exiled in the first chapter, turning Drayden's world upside down. Afterwards, he, his father, and his brother continue to live without his mother in their living zone, the Dorms. Dystopian thrillers tend to be good at world-building. Imagine a world caused by the confluence (an event named, incidentally, The Confluence) of multiple modern world problems such as superbugs due to antibiotic resistant bacteria or technology stripping people of jobs. You are correct in assuming this world is indeed hellish. Even the dialogue is peppered with New American lingo such as *shkat, chotch, flunk, ack, wetchop,* etc. Mechanical pencils are considered advanced technology.

Only Drayden knows the truth of how hellish this world is. He eavesdrops on an official and learns the Dorms are not going to be habitable in the near future. The Dorms living zone is experiencing diminishing food supplies, rampant corruption in the government, and decreasing energy supplies. *The Initiation* is a hell of a ride as Drayden and his ragtag team (coincidentally five other classmates he knows) survive the life or death (or exile) challenges of the Initiation for their own personal reasons. Drayden joins the challenge to get to the Bureau and investigate his mother's exile and bring his family to the Palace. The novel is structured around The Initiation and how its characters overcome its challenges. The effort here is clear: Babu explained over the phone that he spent a month riding the subway system to research the specific turns and details not shown in a map. For New Yorkers, this will be appreciated.

Babu explained to me that the novel works on three levels. The first is the literal: the Initiation is structured around challenges testing bravery and intelligence. The second is the anxiety-driven experience of taking the subway from 72nd Street to Wall Street. Since 2012, the dilapidated infrastructure and constant delays make it difficult to get to work on time and the ride is known to be brutal. The third level is an amusing one: the Initiation is a nod to the initiation of the Greek culture at MIT in the '90s as students endured three days of rush to leave their dorms.

The novel is fun for the world-building and the puzzles and challenges, which take up the bulk of the novel. Babu explained some of the more challenging puzzles were dropped to ensure the book was palatable for people who don't like math. Most young adult novelists rarely put effort in their mind games, often focusing on the fantastical elements and the romances, so this was a breath of fresh air in the genre. Thematically, the novel has a bite: Drayden questions the inequality of his system, only for Eli Holst to call him out on his own hypocrisy (I won't spoil the line). More heartwarming is Drayden's own growth when he realizes the meaning of Mr. Kale's words to him: while often dormant, bravery exists inside everyone.

I do have quibbles with the novel. Aside from Drayden, the other characters are not memorable. Babu describes them as microcosms of society, each with his or her own collective skills. For me, in terms of motivations, the characters don't behave beyond cause and effect and can be read as one-dimensional. Tom is Drayden's loyal friend who hits on girls, so he joins the Initiation (and hits on girls). Alex is the obligatory bully who gives Drayden a black eye and has a negative character arc. Charlie is Alex's lackey but has a moral compass. Sidney is the less clever but more athletic female character and is juxtaposed a tad too often against Catrice to show Catrice is more intelligent. Each character has his or her own quirk, but it's clear that the value system divides into the intellectuals, the athletic, and the otherwise, much like society. As Babu told me, "The Initiation is life; the characters are society and this prize of winning the Initiation at the end is the riches and the success for a small part of the population."

Thematically, the novel gives a lot to think about, but this does not detract from the novel being a fun, light read for a weekend. Give it a try if you want to see what Babu envisions a future dystopian America would be like and a dystopian thriller that includes puzzling challenges.

The Initiation
By Chris Babu
Simon and Schuster/ Permuted Press
Released Feb. 27, 2018

THEATER REVIEW

Exploring both sides of the spectrum

Orlando attempts to walk the fine line between satire and tangents, but often devolves into boring monologues

★★★☆☆

Virginia Woolf's *Orlando*
Written by Virginia Woolf
Directed by A. Nora Long
Lyric Stage Company of Boston
Feb. 23–March 25

By Johnson Huynh
STAFF WRITER

We return once again to the Lyric Stage to see the first production of the season, Virginia Woolf's *Orlando*, a story about a poet that wakes up one morning to find himself metamorphosed into a woman. The play walks a tightrope as the beats alternate between biting satire and sluggish story points.

First starting off in the Elizabethan Era, *Orlando* opens up on a bright sunny day with the titular youth running around unabashedly displaying his masculinity. He duels with imaginary opponents but retreats to the shade of a familiar tree to work on his magnum opus, The Oak Tree. I quickly saw that Orlando was truly the epitome of what Woolf thought of manhood: head-strong and arrogant.

The plot quickly accelerates as the Queen herself arrives to incorporate Orlando into her court. From then on, plot points start occurring in rapid succession. He falls in love with a Russian princess named Sasha; eventually, when she proves to be unfaithful, he leaves for Constantinople as an ambassador. He finds himself in utter confusion one day. Waking up from a deep sleep, Orlando discovers that he has been transformed into a woman.

If one thing can be said of Woolf's play, it is that *Orlando* is one of the first modern attempts to examine gender. However, it does so by beating you over the head with its discoveries. Woolf proves to be very blunt with what she has to say rather than carefully guiding the audience to make their own discoveries.

Orlando finds herself to be immortal, giving the perfect platform for a fleshed out argument on how gender truly affects a human being. Of course, this would be perfect if the point wasn't already established at the start of the first act. The first few times that Orlando launches into a discussion on gender, I was enthralled by what Woolf had to say about the issue. As the play progressed, these once captivating monologues became repetitive. Orlando's words still held the same weight, but the contribution of each piece seemed neither to add onto the progression of the plot nor to advance the audience's understanding.

On the other hand, the stagecraft is something to behold. The director, A. Nora Long, "says the production captures the sweep of the story without requiring elaborate settings" (Byrne 2018). Rather than using a variety of props to showcase the spirit of each age, *Orlando* manages to find a work-around by following tight choreography to really capture the time period. Additionally, the production possesses a lighting design that brings modern stagecraft to an old production. When the characters skate on the ice for the Frost Fair of 1608, the stage illuminates their path. As years leap into the 20th century, the stage glows with the commotion of the big city.

Overall, *Orlando* is a very enjoyable experience, albeit an overly drawn out one. Merit has to be given to the inventiveness of the production staff as they modernized this dust-riddled play for the 21st century. The bond that the ensemble shares and the incredible acting prowess of the lead, Caroline Lawton, are also commendable. However, the play still trudges through plot beats at times, drawing out an already outlandish story. It never seems to find the right mixture of comedy and biting commentary. In the end, *Orlando* remains a very relevant play in this era of LGBT issues.

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ARTS ARTS ARTS ARTS ARTS ARTS ARTS

MUSIC REVIEW

‘I’d love to see that magic raw’

New, local musicians are playing in Cambridge soon, and you should hear ‘em. Here’s why.

By Patricia Gao
EDITOR

I’ve been trying to go to more concerts.

Unfortunately, while various “playing near you” features never fail to find events, I usually feel inclined to stay home. There are not many musicians I want to leave home for, pedestrian student that I am. Though I like plenty of artists, many of whom perform in the Boston area annually, I may not enjoy enough of their songs to want to hear them live (not to mention the fact that plenty of singers are renowned to sound better recorded anyway).

So, I utilize other methods to get close to music. I walk to school with headphones in; I study with my speakers on; I ballroom dance, sometimes. And, of course, I seize opportunities to review albums for *The Tech*. As can be expected, then, *The Tech* is how I discovered Louis Apollon and the Blue Light Bandits.

Both acts will play at Club Passim next week, a fact I was indifferent about — being a for-the-most-part concert naysayer — until I heard their music. Louis Apollon’s debut album, *Free to Be*, was far groovier than advertised. The Boston-based singer-songwriter has an uncanny sense of tune, picking out unpredictable, yet hummable melodies to whimsical words. (“Come with me,” sings Louis on the first track, “and we’ll cleanse our souls.”) He’s as comfortable with arrangements as he is with the acoustic guitar, sometimes expertly introducing a drum or a bass or a flute, other times sliding through a complex solo with the ease of John Mayer. Listening to his record, I found myself itching to watch Louis Apollon play. There’s some magic in the way he overlays a detailed rhythm with his smooth-as-sunrise voice and makes it seem *simple*, and I’d love to see that magic raw, free from studio perfection.

The Blue Light Bandits (also local — they’re from Worcester) are similarly powerful. The instrumental bits in their pieces are friendly, like city lights; the vocals, often chorus-like, *always* rise up at the perfect moment. The members of Blue Light Bandits are stellar lyricists; I was pleasantly surprised at the intricacies of their tracks. Their song “Homegrown / ‘Til The Day I Die,” for example, is less about the personality of a town than the character of a person, and contains satisfyingly rhythmic observations on humanity, like the lines “Nobody wants to die / but everybody’s gotta go.”

Blue Light Bandits are skilled musicians, too, readily handling solos at breakneck speed, or changing the tempo without missing a beat. They’ve got a wonderful funk, in addition to a toe-tapping optimism. It’s very, very hard to hear their music and sit still.

Free to Be
Louis Apollon
Sept. 29, 2017

Blue Light Bandits
Blue Light Bandits
Oct. 27, 2017

If I ever felt disillusioned about concert-going, I certainly don’t anymore, not after experiencing the debut records of these local musicians. I have no doubts that Lou Apollon and Blue Light Bandits are so, so worth hearing in person, and you shouldn’t either.

Club Passim, Mar. 14, 7 p.m. See you there.

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Midterms

Solution, page 16

5	6			3	8			1
						9	6	
	4		6	7			8	
	7		3					6
		4				5		
1					7		9	
	2			8	3		5	
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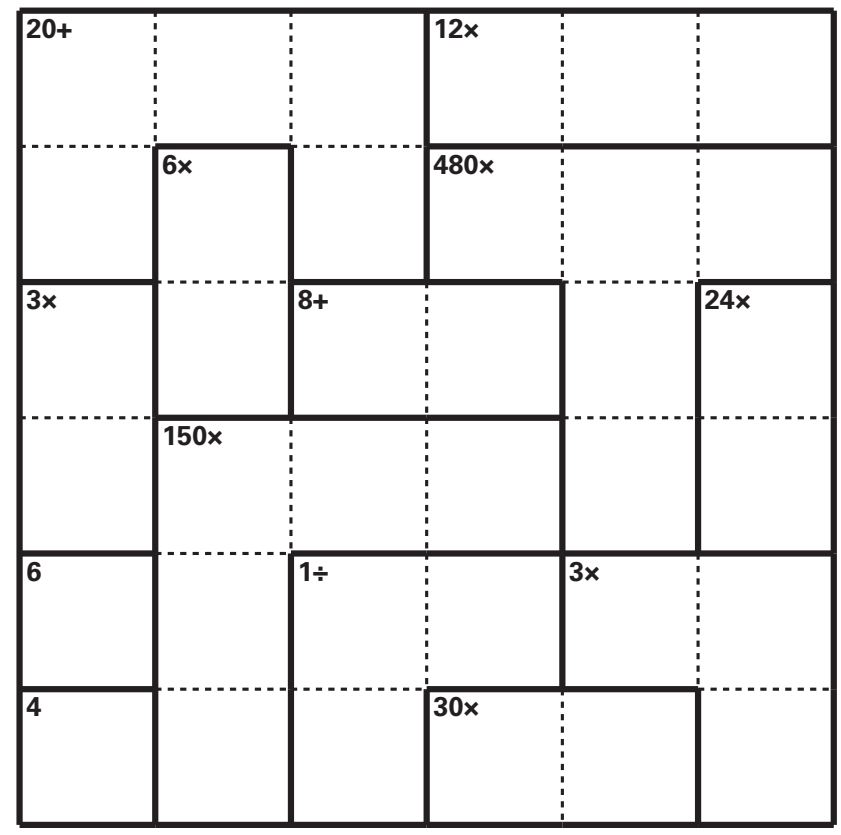
Purgatory

Solution, page 16



Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

Happy Days by Charles Slack

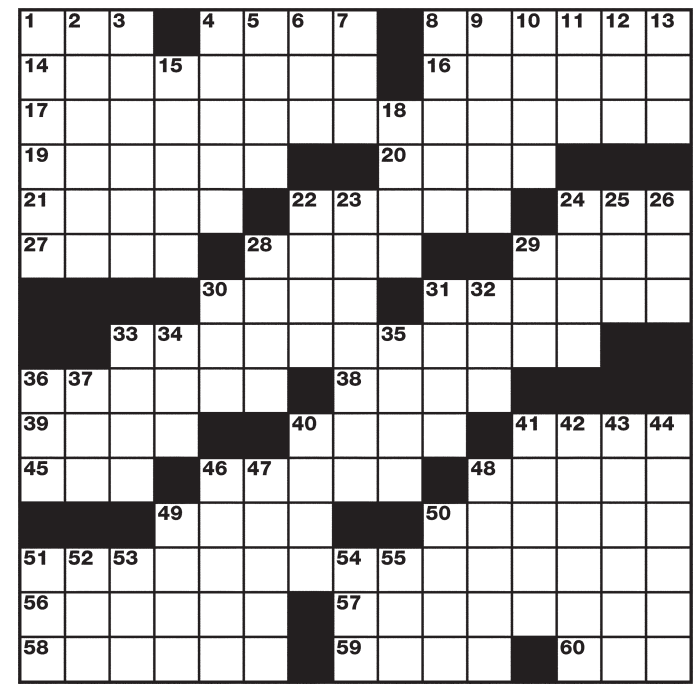
Solution, page 16

ACROSS

1 Expert in 51 Down forms
4 Remedy
8 Insect or bird
14 Gives new form to
16 Venue
17 Very happy
19 Keen insight
20 Teheran's land
21 Toys with tails
22 Caulking material
24 Finance deg.
27 Snow vehicle
28 Armed conflicts
29 Peruse
30 Frisbee or puck
31 Thais and Taiwanese
33 Very happy
36 Of horses
38 Object of worship
39 Deceptive plan
40 "No ifs, __ or buts!"
41 Worry (about)
45 Go bad, as vegetables
46 Courageous
48 Big name in farm machines
49 Japanese soup ingredient
50 Quiet and restful
51 Very happy
56 Computer networking device
57 How some rye breads are made
58 Accentuate
59 Venus de Milo's lack
60 Home for hogs

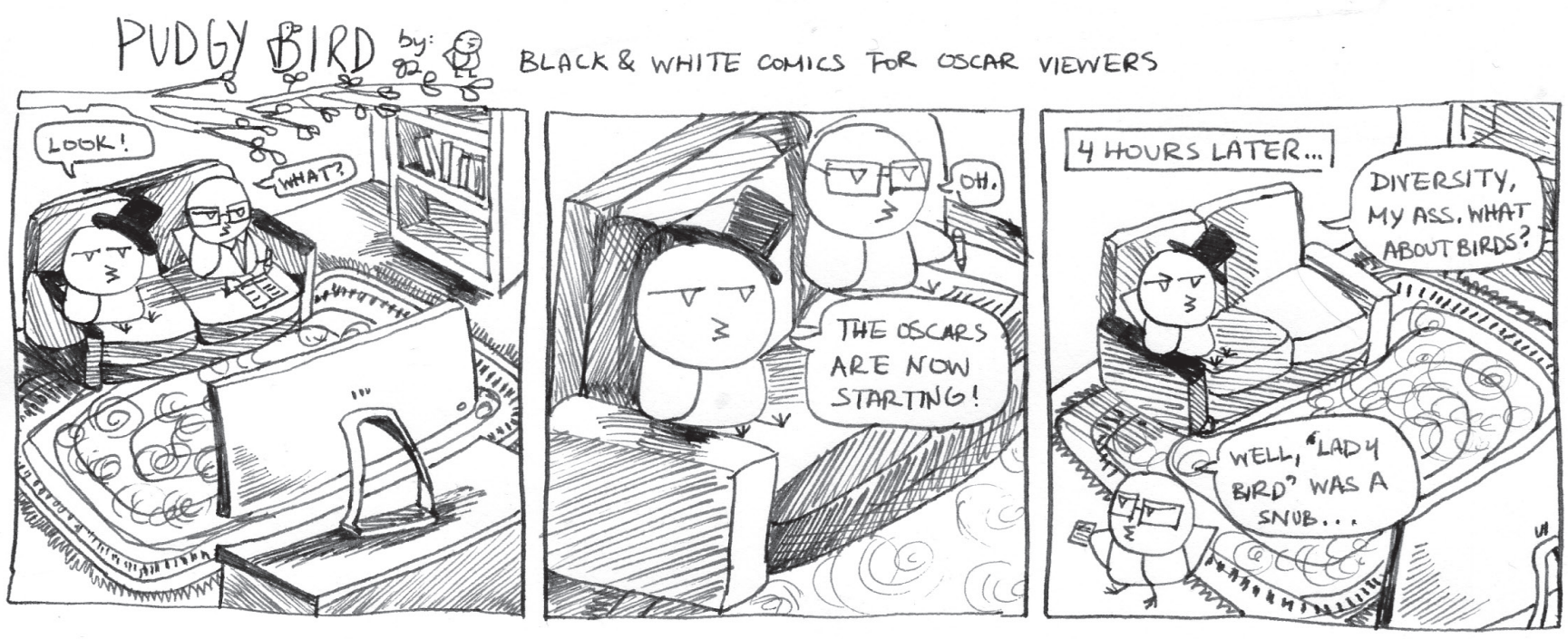
DOWN

1 Frog sounds
2 SAT taker's implement
3 Sharp-witted
4 Behind-the-back garments
5 Conversant with
6 Penalty caller
7 Superlative suffix
8 On one's toes
9 Emphatic refusal
10 Computer screen image
11 Scratch up
12 Totally
13 Was in first place
15 __ in on (neared)
18 Web page visits
22 Time gone by
23 Bratty kids
24 Intend
25 Make illegal
26 Billboard displays
28 Slinky, essentially
29 River, in Mexico
30 Family room
31 Pop singer Tori
32 Spain's Costa del __
33 Remove from office
34 Compete
35 Sea swirl
36 Go wrong
37 Preserve the status __
40 Like __ of bricks
41 Not tame
42 Actor Keanu
43 Novelist Hemingway
44 Very small
46 Hands over
47 Callers to tech support



48 Things done
49 Dole (out)
50 Son of Noah
51 Tax agcy.
52 Word often contracted
53 Big __, CA
54 Airport screening org.
55 That ship

Oscar so Pudgy by Ivy Li



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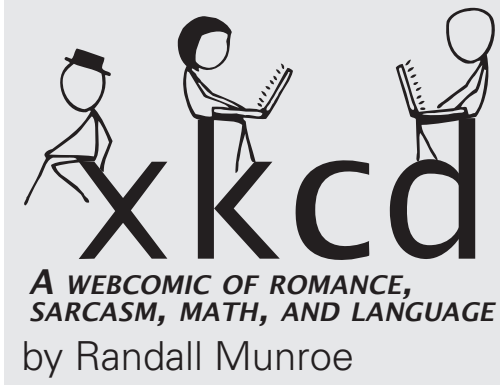
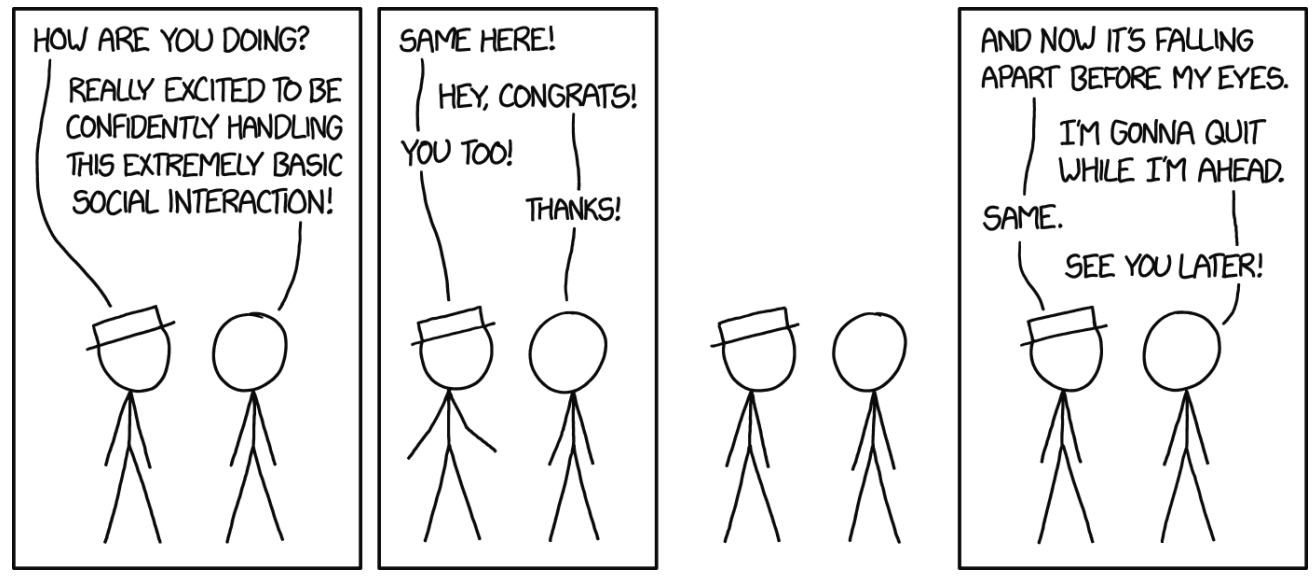


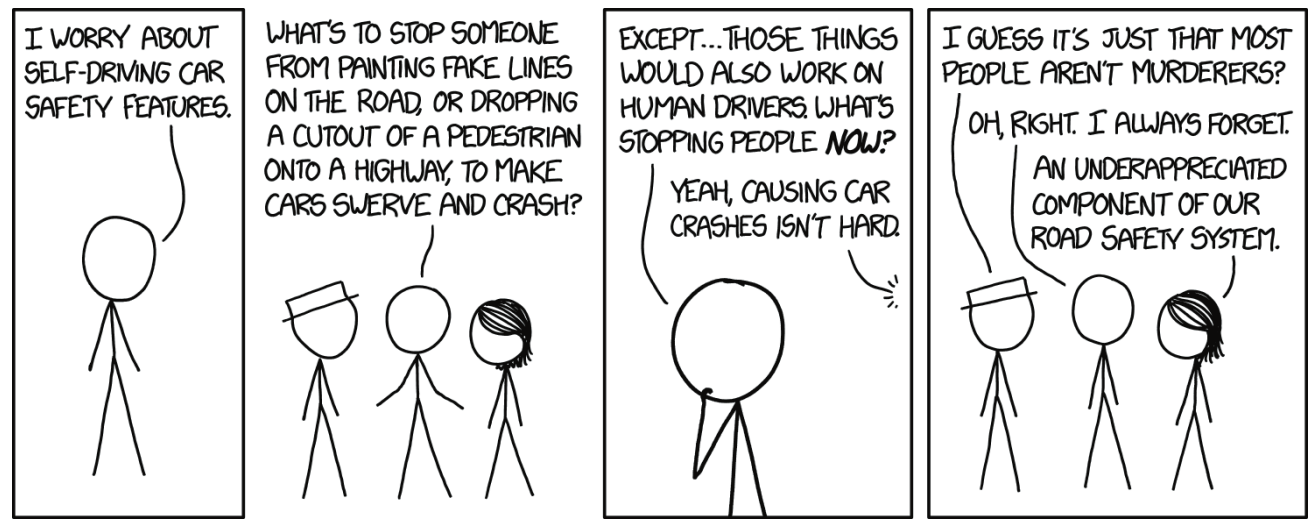
A webcomic of romance, sarcasm, math, and language
by Randall Munroe

[1961] Interaction



[They do not move.]

[1958] Self-Driving Issues



If most people turn into murderers all of a sudden, we'll need to push out a firmware update or something.

Remember Me

Solution, page 16

		8	1		6		4	
	2	4	5				9	
5	1							
2					1	4	8	9
9	8	6	4					2
							6	7
	6				4	5	2	
	7		6		2	3		

Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

Merman

Solution, page 16

Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

FUN FUN FUN

SPORTSSPORTSSPORTS

SPORTS BLITZ

Men's Baseball (1–3) started off with a win against Trinity University behind a strong outing by Zachary Kopstein '20, but dropped their next two matchups against them and lost to No. 1 UMass Boston.

Men's Basketball (24–5) continued to see outstanding play from AJ Jurko '19 as they pulled out wins in the first two rounds of the NCAA Tournament, against Brockport and Johns Hopkins University. The Engineers will face Middlebury College in the semifinal matchup Friday evening.

Men's Track and Field competed in the Tufts Last Chance Qualifier, the final meet ahead of nationals. Alec Reduker '20 finished third in the high jump with a season-high 6 feet, 9.5 inches and is now 14th in the nation. Chris Washington '20 was fourth overall with a jump of 6 feet, 6 inches. Benton Wilson '21 finished third in the 200 with a 22.40. Also highlighting the event was Mac Gregg '21, who placed third in the long jump (21 feet, 8 inches), and Ryan Prinster '18, who placed third in the triple jump (45 feet, 8.5 inches). Liam Ackerman '21 finished third in the pole valut (14 feet, 9.5 inches). Cody Bratten '18 finished 6th in the shot put and Jon Fakkema '19 finished 6th in the weight throw.

Men's Volleyball (12–2) cruised past their opponents at Lasell College and have now won four straight matchups. Thomas Nelson '20 was awarded UVC Player of the Week honors after notching up 56 digs in three matches leading the Engineers to a 3-0 week.

Women's Basketball (18–10) fell to Marymount University in a heart-breaking elimination game in the first round of the NCAA Tournament, despite a double-double from Taylor V'Dovec '19.

Women's Lacrosse (1–1) won an overtime thriller against Keene State College, 16–15, but couldn't find any momentum against Plymouth State University as the Engineers took the loss, 17–11.

Rifle took third place at the MAC championship with 4,295 points. The Engineers were highlighted by Jesus Herrera '20, who finished 5th in smallbore and David Bustillos '18, who took 8th place in air rifle.

Women's Softball (4–2) started off the season in strong fashion. Sarah Von Ahn '20 stole the headlines when she was named the NEWMAC Softball Offensive Athlete of the Week. In that span, she batted .579 with 12 RBI.

Women's Tennis (1–0) made a mockery of St. Lawrence as the Engineers took care of their opponents by a 9–0 margin in the spring opener. Elysa Kohrs '18 and Libby Rickeman '21 were named the NEWMAC Doubles Team of the Week for their outstanding play at the opener.

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Solution to Midterms
from page 13

5	6	7	9	3	8	4	2	1
8	1	3	2	4	5	9	6	7
9	4	2	6	7	1	3	8	5
2	7	8	3	5	9	1	4	6
6	9	4	8	1	2	5	7	3
1	3	5	4	6	7	2	9	8
7	2	9	1	8	3	6	5	4
4	5	1	7	2	6	8	3	9
3	8	6	5	9	4	7	1	2

Solution to Purgatory
from page 13

5	4	3	1	6	2
2	1	6	4	3	5
1	6	5	3	2	4
3	2	1	5	4	6
6	5	4	2	1	3
4	3	2	6	5	1

Solution to Remember
from page 15

3	9	8	1	2	6	7	4	5
6	2	4	5	3	7	8	9	1
5	1	7	9	4	8	2	3	6
2	5	3	7	6	1	4	8	9
7	4	1	2	8	9	6	5	3
9	8	6	4	5	3	1	7	2
4	3	2	8	1	5	9	6	7
1	6	9	3	7	4	5	2	8
8	7	5	6	9	2	3	1	4

Solution to Merman
from page 15

1	6	5	2	4	3
2	1	6	3	5	4
5	4	3	6	2	1
3	2	1	4	6	5
6	5	4	1	3	2
4	3	2	5	1	6

Solution to Quinn
from page 14

6	5	1	9	3	4	8	7	2
7	6	2	1	4	5	9	8	3
9	8	4	3	6	7	2	1	5
2	1	6	5	8	9	4	3	7
4	3	8	7	1	2	6	5	9
5	4	9	8	2	3	7	6	1
1	9	5	4	7	8	3	2	6
3	2	7	6	9	1	5	4	8
8	7	3	2	5	6	1	9	4

Solution to Happy
from page 13

C	P	A	■	C	U	R	E	■	A	N	I	M	A	L
R	E	S	H	A	P	E	S	■	L	O	C	A	L	E
O	N	T	O	P	O	F	T	H	E	W	O	R	L	D
A	C	U	M	E	N	■	■	I	R	A	N	■	■	■
K	I	T	E	S	■	P	U	T	T	Y	■	M	B	A
S	L	E	D	■	W	A	R	S	■	■	R	E	A	D
■	■	■	D	I	S	C	■	A	S	I	A	N	S	■
■	O	V	E	R	T	H	E	M	O	O	N	■	■	■
E	Q	U	I	N	E	■	I	D	O	L	■	■	■	■
R	U	S	E	■	■	A	N	D	S	■	F	R	E	T
R	O	T	■	G	U	T	S	Y	■	D	E	E	R	E
■	■	■	M	I	S	O	■	■	S	E	R	E	N	E
I	N	S	E	V	E	N	T	H	H	E	A	V	E	N
R	O	U	T	E	R	■	S	E	E	D	L	E	S	S
S	T	R	E	S	S	■	A	R	M	S	■	S	T	Y

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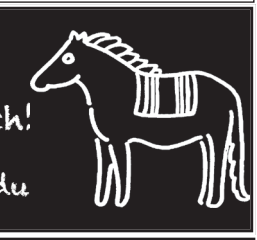

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